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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/697,605	10/26/2000	Michael C. Park	EWG-123-US	3504

758 7590 11/12/2003  
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EXAMINER
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VO, TUNG T

ART UNIT	PAPER NUMBER
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2613

DATE MAILED: 11/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/697,605

Applicant(s)

PARK ET AL.

Examiner

Tung T. Vo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: .

## **DETAILED ACTION**

### ***Information Disclosure Statement***

1. The information disclosure statement (IDS) filed 04/19/02 has been considered. The IDS filed 4/19/02 has not been received during examination. A submission of the IDS filed 06/03/02 is requested.

### ***Drawings***

2. Formal drawings are required in this application.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

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4. Claims 1-2, 4-6, 8, 11-13, 15 are rejected under 35 U.S.C. 102(e) as being anticipated by McCutchen (US 6,141,034).

Re claims 1, McCutchen teaches Re claim 1, McCutchen discloses system for calibrating a multi-lens camera comprising (figs. 13, 20-23): a structure which has indicia along at least some of its edges and which is shaped (446 of fig. 32, e.g. the edge is marked with dot, indicia, or pattern), wherein

(a) each edge of the structure which will be seamed is captured by two lenses (col. 45, line 17 through col. 46, line 57; fig. 13 and 48 and 50 of fig. 94B, where the two images are joining an edge 1016 of fig. 94B);

(b) the image captured by each camera lens includes at least one row of indicia along each edge which will be seamed (figs. 95, 100); whereby when said multi-lens camera which is positioned in the center of said structure records images (figs. 73-76, see also fig. 111);

a particular edge of said structure is recorded (captured) by two cameras ( 446 of fig. 32, e.g. two cameras capture the edge center as shown in fig. 3; col. 34, lines 36-40), and said cameras can be calibrated (adjusted) by determining the parameters (zoom, pan, tilt) needed to make the indicia on said particular edge coincide (col. 59, line 45 through col. 61 line 12).

Re claim 2, McCutchen further discloses a cube shaped structure with visible indicia along the edges of the cube (702 of fig. 65; col.58, lines 47-59), whereby when said multi-lens camera positioned in the center of said cube records images (fig. 73, the

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cameras mounted on the center on the head); a particular edge of said cube is recorded (captured) by two cameras (fig. 65; col.58, lines 47-59), and said cameras can be calibrated by determining the parameters needed to make the dots on said particular edge coincide (cols. 45 and 46).

Re claims 4 and 8, McCutchen further discloses wherein the shape of said dots (marks) is such that when viewed through a fisheye lens they appear round (col. 72, lines 5-11).

Re claims 5, McCutchen further discloses method of calibrating a multi-lens camera (300 of fig. 3) comprising the steps of, recording over lapping images of a test pattern (marked 446 of fig. 32, e.g. the marked edge is captured by the cameras), said test pattern including identifiable indicia (marked edge) along the edge thereof, determining the parameters required to seam said images into a panorama such that said indicia coincide (col. 59, line 45 through col. 61, line 12), whereby said parameters form calibration parameters for said camera (col. 56, line 16 through col. 57, line 11).

Re claim 6, McCutchen further discloses wherein said test pattern comprises the edges of a cube (figs. 65 and 67), said cube having indicia along the edges thereof (marked edge see fig. 32).

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Re claim 11, McCutchen further discloses a method of calibrating a camera comprising the steps of placing said camera in a calibration structure and recording a series of images (col. 56, line 16 through col. 57, line 10), determining the parameters required by a seaming program in order to seam the images from said camera into a panorama (col. 44, lines 26 through col. 45, line 15), recording said calibration parameters along with an identification of the camera that produced the images (col. 65, line 15 through col. 63, line 47; wherein the col. 63 through 64 shows multiple recoder being used).

Re claim 12, McCutchen further disclose a method of recording a particular set of images and producing a panorama from said particular set of images with a particular multi-lens camera comprising, recording with said camera a set of calibration images of a calibration structure, an identification of said camera being recorded along with said calibration images, determining the parameters required to seam said set of calibration images into a panorama, recording said parameters along with an identification of said camera, capturing said particular set of images with said particular camera and recording said images along with an identification of said camera, seaming said particular set of images into a panorama using said parameters (col. 61, line 15 through col. 65, line 16).

Re claim 13, See analysis in claims 1 and 12.

Re claims 15, McCutchen further discloses wherein said structure is in the shape of a cube (figs. 65 and 67).

5. Claims 5, 6, and 11 are rejected under 35 U.S.C. 102(e) as being anticipated by Nalwa (US 6,195,204 B1)

Re claims 5-6, and 11, Nalwa discloses a method of calibrating a multi-lens camera comprising the steps of recording overlapping images of a test pattern (col. 13, wherein the mapping image technique), said test pattern including identifiable indicia along the edge thereof (930 of fig. 19), determining the parameters required to seam said images into a panorama such that said indicia coincide (980, 986 of fig. 21), whereby said parameters form calibration parameters for said camera (col. 12, lines 43-67, see also col. 13 and 14); wherein said test pattern comprises the edges of a cube (900 of fig. 18), said cube having indicia along the edges thereof (930 of fig. 19).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over McCutchen (US 6,141,034) in view of Nalwa (US 6,195,204 B1).

Re claim 1-15, McCutchen teaches system for calibrating a multi-lens camera comprising (figs. 13, 20-23): a structure which has indicia along at least some of its edges and which is shaped (446 of fig. 32, e.g. the edge is marked with dot, indicia, or pattern), wherein (a) each edge of the structure, which will be seamed, is captured by two lenses

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(col. 45, line 17 through col. 46, line 57; fig. 13 and 48 and 50 of fig. 94B, where the two images are joining an edge 1016 of fig. 94B); (b) the image captured by each camera lens includes at least one row of indicia along each edge which will be seamed (figs. 95, 100); whereby when said multi-lens camera which is positioned in the center of said structure records images (figs. 73-76, see also fig. 111); a particular edge of said structure is recorded (captured) by two cameras (446 of fig. 32, e.g. two cameras capture the edge center as shown in fig. 3; col. 34, lines 36-40), and said cameras can be calibrated (adjusted) by determining the parameters (zoom, pan, tilt) needed to make the indicia on said particular edge coincide (col. 59, line 45 through col. 61 line 12); a cube shaped structure with visible indicia along the edges of the cube (702 of fig. 65; col. 58, lines 47-59), whereby when said multi-lens camera positioned in the center of said cube records images (fig. 73, the cameras mounted on the center on the head); a particular edge of said cube is recorded (captured) by two cameras (fig. 65; col. 58, lines 47-59).

McCutchen also teaches cameras can be calibrated by determining the parameters needed to make the dots on said particular edge coincide (cols. 45 and 46); calibrating a multi-lens camera (300 of fig. 3) comprising the steps of, recording over lapping images of a test pattern (marked 446 of fig. 32, e.g. the marked edge is captured by the cameras), said test pattern including identifiable indicia (marked edge) along the edge thereof, determining the parameters required to seam said images into a panorama such that said indicia coincide (col. 59, line 45 through col. 61, line 12), whereby said parameters form calibration parameters for said camera (col. 56, line 16 through col. 57, line 11); wherein



the shape of said dots (marks) is such that when viewed through a fisheye lens they appear round (col. 72, lines 5-11).

Furthermore, McCutchen further teaches wherein said test pattern comprises the edges of a cube (figs. 65 and 67), said cube having indicia along the edges thereof (marked edge see fig. 32); calibrating a camera comprising the steps of placing said camera in a calibration structure and recording a series of images (col. 56, line 16 through col. 57, line 10), determining the parameters required by a seaming program in order to seam the images from said camera into a panorama (col. 44, lines 26 through col. 45, line 15), recording said calibration parameters along with an identification of the camera that produced the images (col. 65, line 15 through col. 63, line 47; wherein the col. 63 through 64 shows multiple recoder being used).

It is noted that McCutchen does not particularly teach where the edges of said cube have two rows of dots spaced apart an amount equal to the distance between the lenses of said camera for calibrating the camera as claimed.

However, Nalwa teaches the edges of said cube have two rows of dots spaced apart an amount equal to the distance between the lenses of said camera for calibrating the camera (col. 12, lines 23-67). Therefore, taking the teachings of McCutchen and Nalwa for the same purpose of calibrating the camera using captured dots between lenses of the camera as suggested by Nalwa (cols. 13 and 14). Doing so would use the multiple cameras to enhance use of virtual meeting rooms by allowing a viewer to see the meeting room in more natural format as suggested by Nalwa (col. 2, lines 10-15).

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***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Gilbert et al. (US 6,337,683 B1) discloses panoramic movies that simulate movement through multidimensional space.

***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tung T. Vo whose telephone number is (703) 308-5874. The examiner can normally be reached on 6:30 AM - 3:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris. Kelley can be reached on (703) 305-4856. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

  
TUNG T. VO  
PATENT EXAMINER

T.Vo

Tung T. Vo  
Examiner  
Art Unit 2613